LinkSprite JPEG Color Camera
Serial UART Interface

User Manual

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LinkSprite Technologies, Inc

www.linksprite.com

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		Version	1.0

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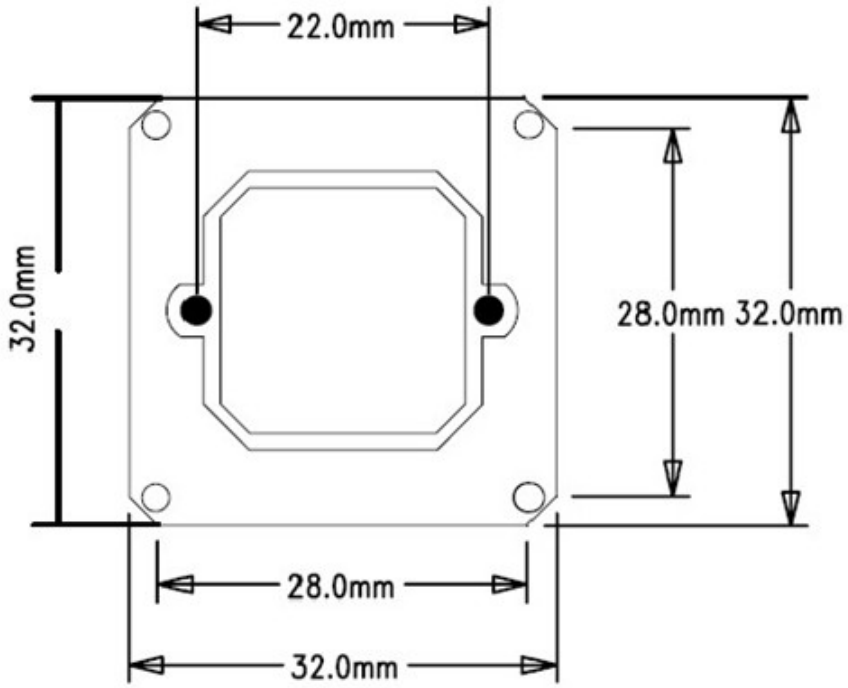
1. Introduction

LS-Y201 is LinkSprite's new generation serial port camera module. It can captures high resolution pictures using the serial port. LS-Y201 is a modular design that outputs JPEG images through UART, and can be easily integrated into existing design.

2. Specification

- VGA/QVGA/160*120 resolution
- Support capture JPEG from serial port
- Default baud rate of serial port is 38400
- DC 3.3V or 5V power supply
- Size 32mm X 32mm
- Current consumption: 80-100mA
- Near the C03 pin is AV output, this is a analog output pin.



Footprint

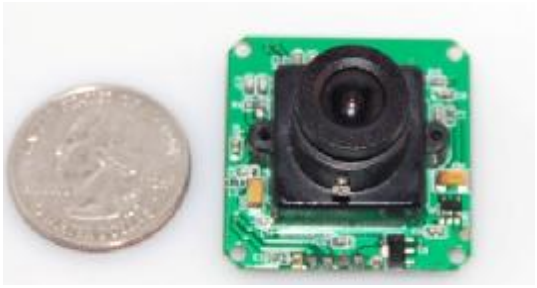
3. Application

- Different image capture systems
- Environmental monitoring
- Industry monitoring
- Medical equipment
- Video phone
- Security
- Vehicle based GPS

4. Getting Started - TTL

4.1 Hardware part

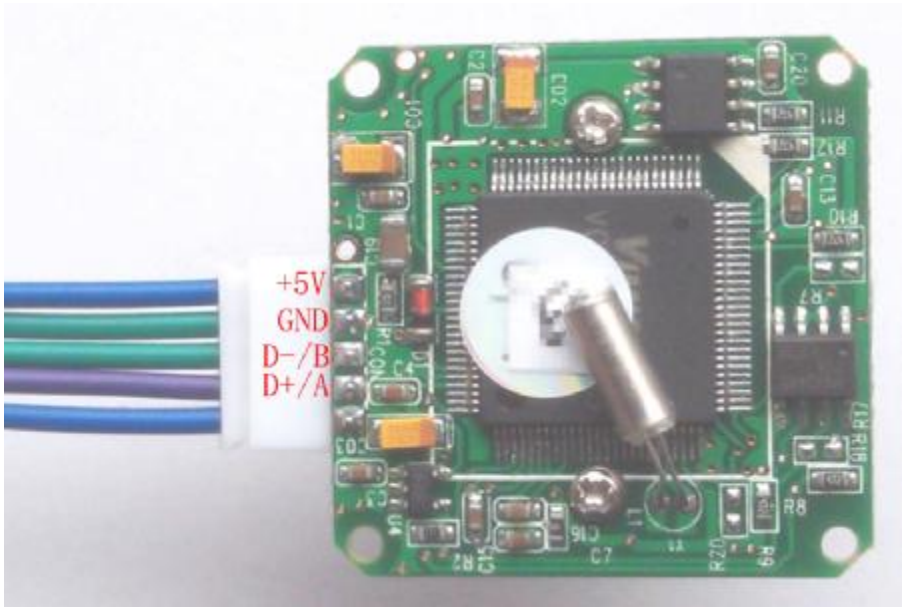
- LS - Y201 – TTL camera



- 5V DC power

- RS232-RS485 interface converter , passive module

4.2 Hardware connection



- LS - Y201 – RS485(D-/B) to RS232-RS485 interface converter(D-/B).
- LS - Y201 – RS485(D+/A) to RS232-RS485 interface converter(D+/A).
- LS - Y201 – RS485 (GND) to GND in power.
- LS - Y201 – RS485 (VCC) to +5V DC power.
- RS232-RS485 interface converter module and DB9 needle connected to each, and DB9 hole connected to PC.

4.3 Software

- X-CTU Download Link：www.digi.com (test software)
- Software：

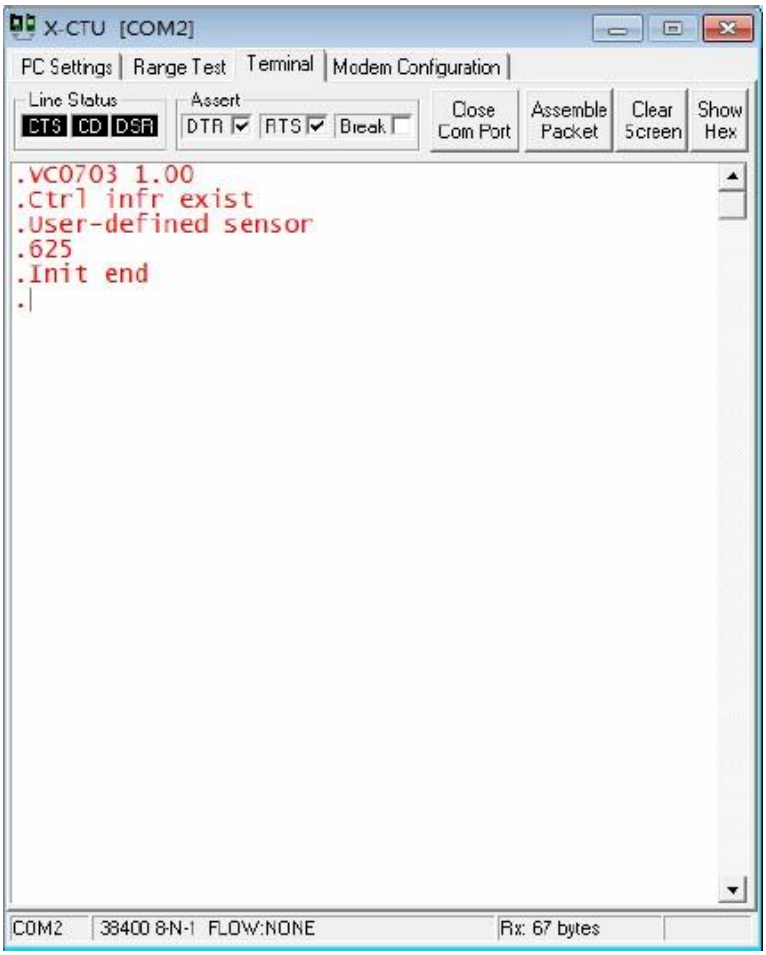
  http://www.linksprite.com/download/showdownload.php?id=36&lang=en

5. Test

5.1 Regular test

Power up information in X-CTU as the following ASCII：

Please note that the baud rate should be 38400.

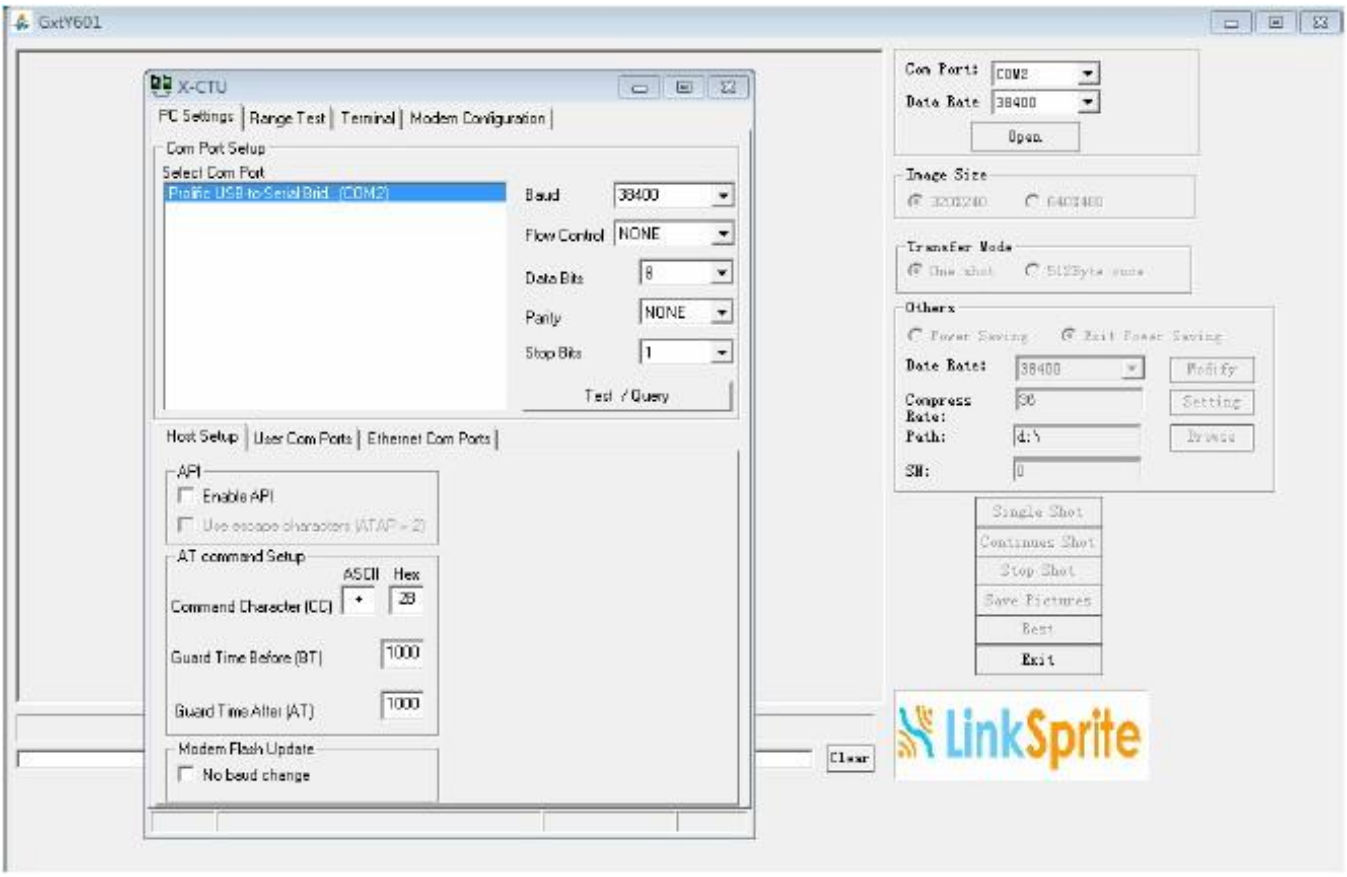


5.2 Software

Com Port：Choose the right Com Port.

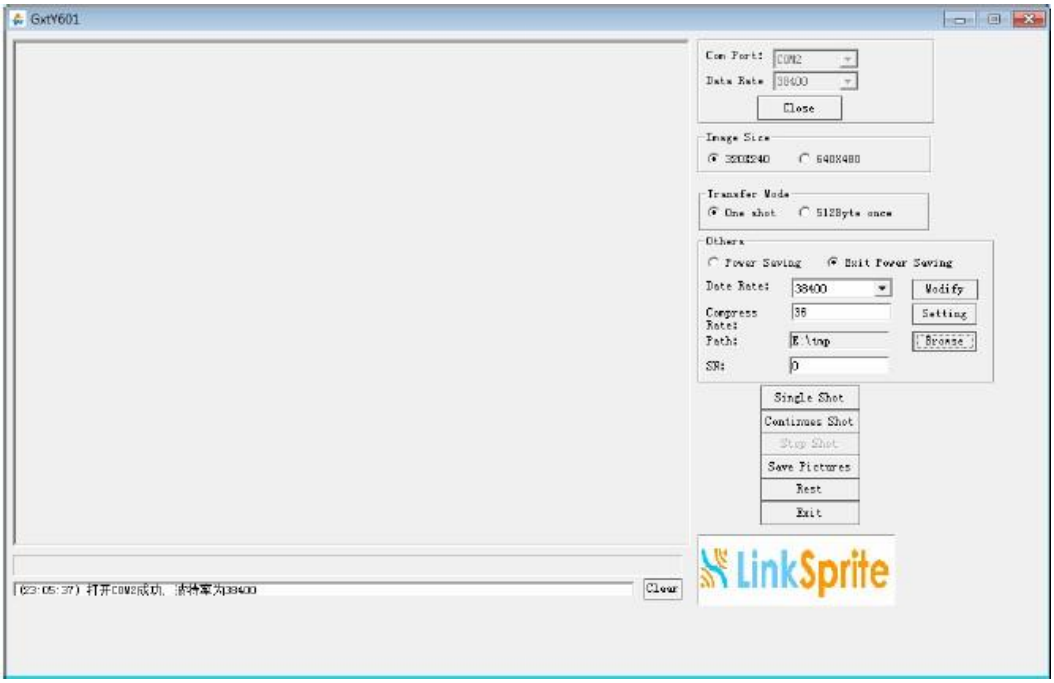
Data Port：Baud Rate settings, here it is 38400.

Click “Open” to open Com connection.

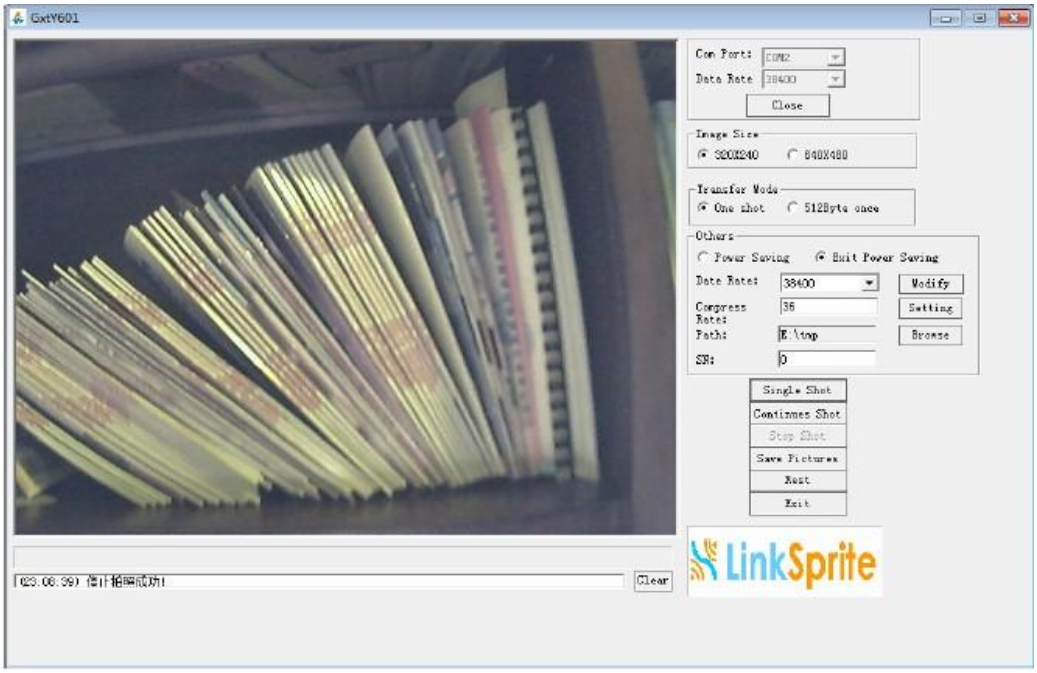


Path：Set the path for captured images. Please note that it is necessary to to set the path, if it is a wrong path or not exist, then the picture may not be saved.

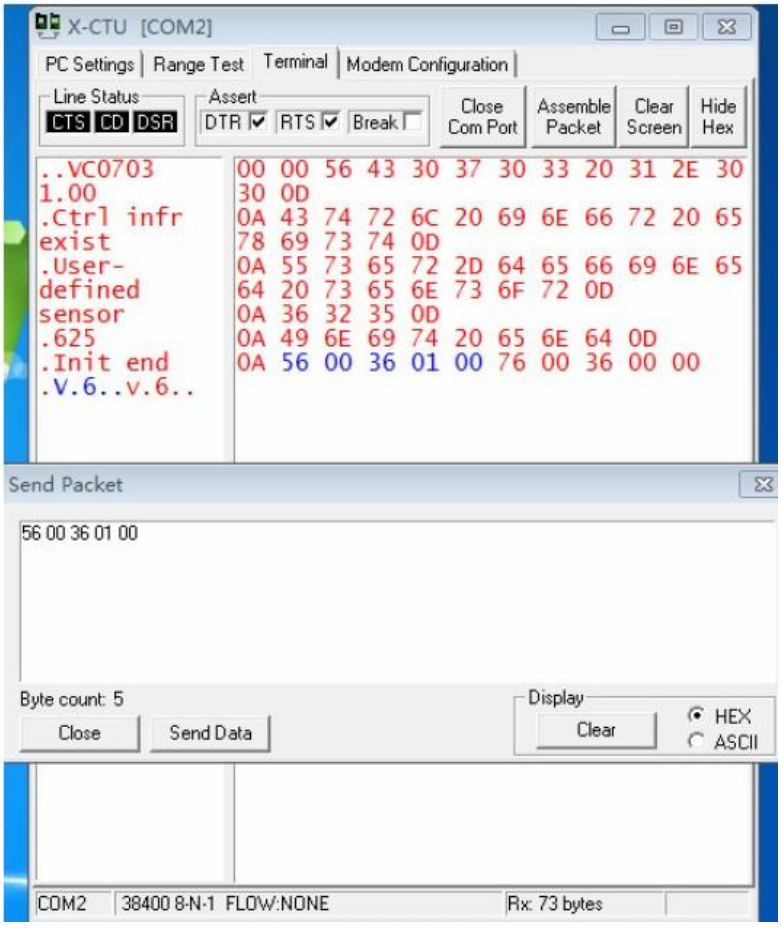
5.3 Test with software



Click “Single Shot”：



5.4 Test with X-CTU



Input HEX command in “Send Packet” and click “Send Data”，X-CTU will show the input command and return the information sent back by the camera.

6. Communication Protocol

6.1 Reset

Send：56 00 26 00

Return：76 00 26 00

6.2 Take picture

Send：56 00 36 01 00

Return：76 00 36 00 00

6.3 Read JPEG file size

Read length：56 00 34 01 00

Return ： 76 00 34 00 04 00 00 XH XL

XH XL is the length of the picture file, MSB in the front and LSB in the end.

6.4 Read JPEG file content

Read：56 00 32 0C 00 0A 00 00 MM MM 00 00 KK KK XX XX

Return ：76 00 32 00 00 （Spacing Interval）FF D8 。。。……。。。（Spacing Interval）

76 00 32 00 00

（spacing interval）= XX XX*0.01ms

00 00 MM MM Init address

00 00 KK KK data length

MSB first, then LSB

Note：（Spacing Interval）= XX XX*0.01ms，it is better to be smaller，such as：00 0A

JPEG file start from FF D8 end by FF D9.

To read Jpeg file, the start is always 0000,and read data block in integer multiple of 8 till it show FF D9 at the end.

6.5 Stop taking pictures

Stop ： 56 00 36 01 03

Return ： 76 00 36 00 00

6.6 Compression Ratio

Send：56 00 31 05　01 01 12 04　XX

Return：76 00 31 00 00

XX is usually 36，XX: 0X00 to 0XFF , XX is about Compression Ratio , the bigger it is , the more compressed of the picture.

6.7 Image size

Command 1 ：

Send	Return
56 00 31 05 04 01 00 19 00 （640*480）	76 00 31 00 00
56 00 31 05 04 01 00 19 11 （320*240）	76 00 31 00 00
56 00 31 05 04 01 00 19 22 （160*120）	76 00 31 00 00

When changing the size，it needs to be reset or reconnect power , once it has been changed , the parameters will remain even disconnect power.

Command 2：

Send	Return
56 00 54 01 00（640*480）	76 00 54 00 00
56 00 54 01 11（320*240）	76 00 54 00 00

56 00 54 01 22（160*120） 76 00 54 00 00

Do not disconnect or reset after sending the command, or it will turn back to 320*240.

Please Note: If the cameras have R15, so you can't modify data in the EEPROM.

6.8 Power Saving

Send： 56 00 3E 03 00 01 01 Return ： 76 00 3E 00 00

Quit Saving：56 00 3E 03 00 01 00 Return：76 00 3E 00 00

6.9 Changing Baud Rate

Send ： 56 00 24 03 01 XX XX

Return ： 76 00 24 00 00

XX XX	baud rate
AE C8	9600
56 E4	19200
2A F2	38400
1C 4C	57600
0D A6	115200（Max）

6.10 LS - Y201 – RS485 changing device number

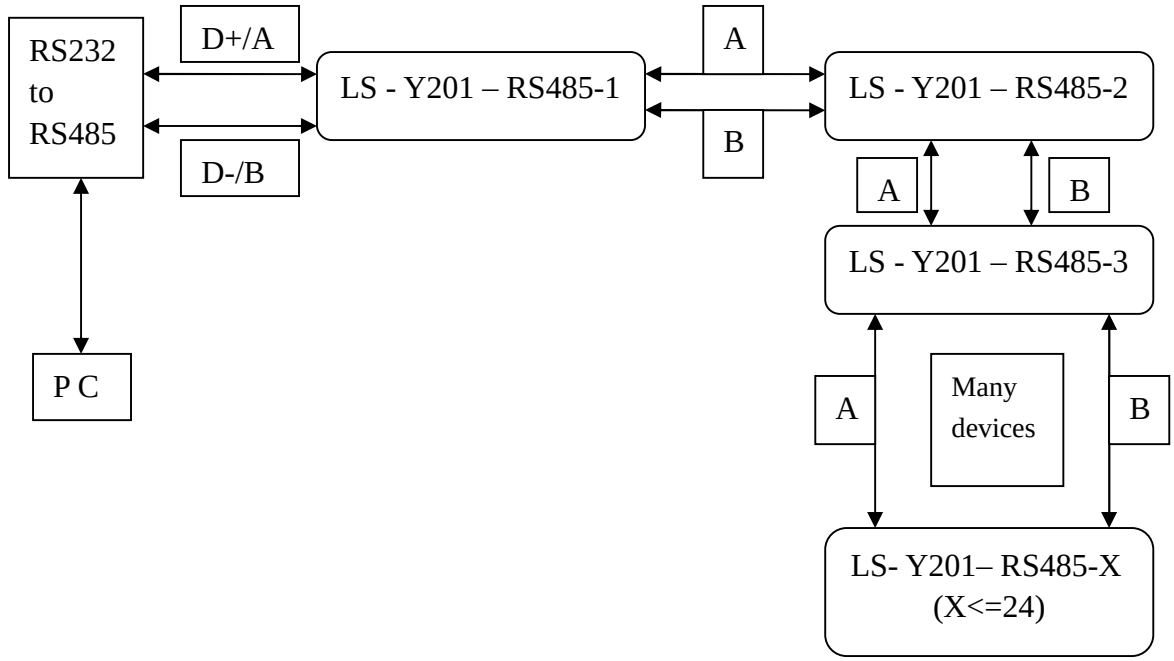
Changing device number: 56 XX 31 05 04 01 00 06 YY

XX is original device number (default is 00) , and YY is new device number. The device number can be repeated modification.

Please particularly note: Please cautiously use this command , you must be remember the device number , otherwise the camera could not be used.

This command is used in many RS458 camera parallel , and most parallel 24 .

Connection method:



Please Note：

- The starting read address must be the 8 integer multiples
- The serial port will show the below info when connect with power：

  Ctrl infr exist

  User-defined sensor

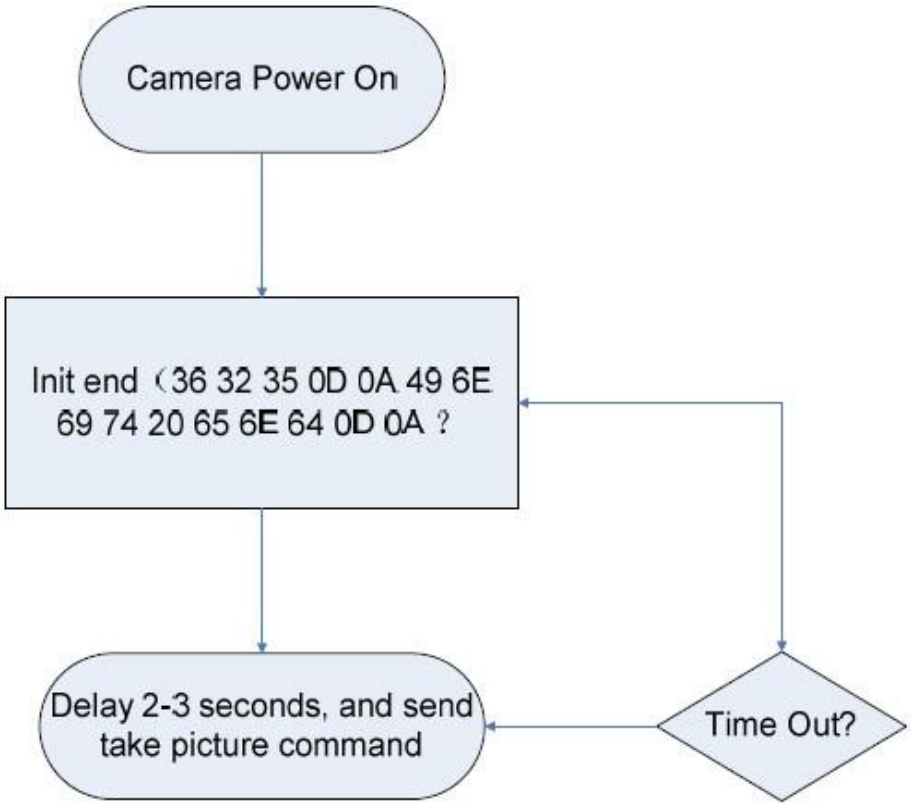
  625

  Init end

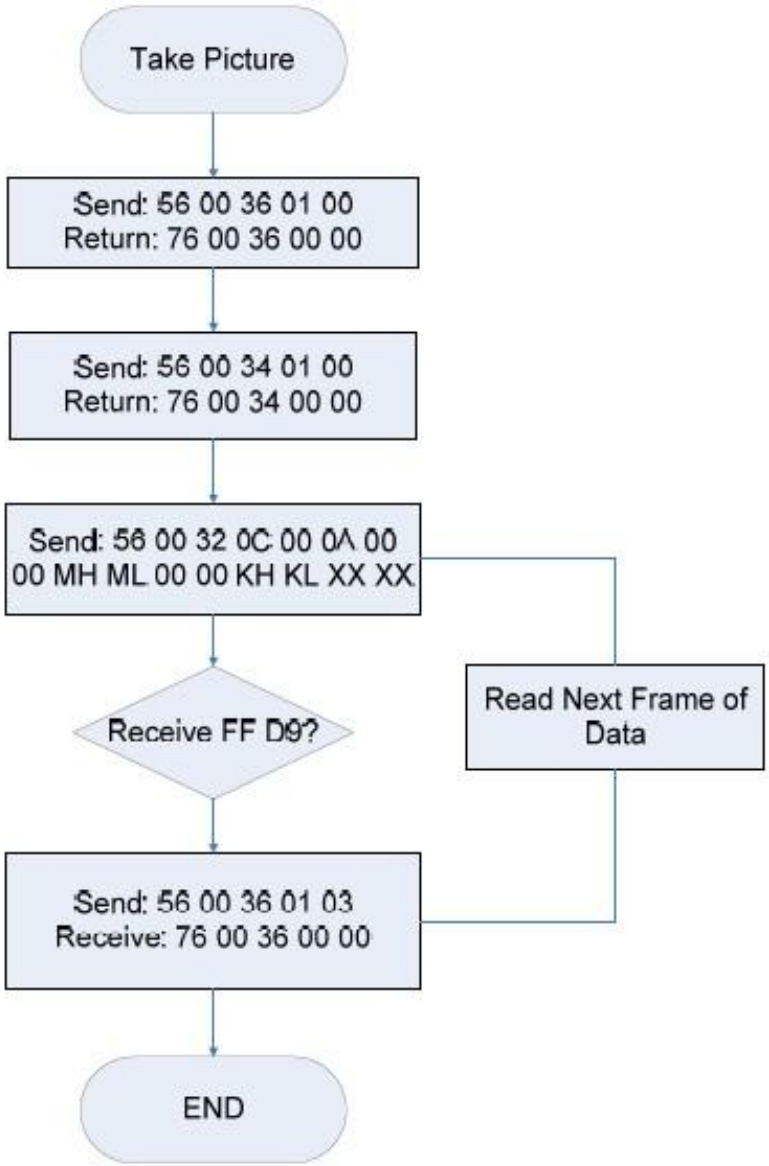
- The host only have to make sure when to receive “Init end”（36 32 35 0D 0A 49 6E 69 74 20 65 6E 64 0D 0A）, then take the capture command in 2-3s.

7. Program flow chart

7.1 Initialize



7.2 Take JPEG picture：


Take Picture
Send: 56 00 36 01 00
Return: 76 00 36 00 00
Send: 56 00 34 01 00
Return: 76 00 34 00 00
Send: 56 00 32 0C 00 0A 00
00 MH ML 00 00 KH KL XX XX
Receive FF D9?
Read Next Frame of Data
Send: 56 00 36 01 03
Receive: 76 00 36 00 00
END

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